
# ALERT MESSAGING SERVER

## User Manual

Version 3.8

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IQSol GmbH A-3312 Oed 119
Tel.: +43 676 48 84 021 email: office@iqsol.biz www.iqsol.biz

# Legal Notice:

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# 1. The Alert Messaging Server

IT monitoring and reporting become important more and more. AMS is a two-way messaging system to alert administrators and other staff with mission-critical information at any time and any place, allowing for remote response via E-Mail, SMS and Voice.

With AMS you can easily initiate complex interactions with monitoring systems, allowing database record updating, message retrieval and more.

The Alert Messaging Server, a full-featured notification system for enterprise administrators, offers methods to handle errors from various market-leading applications and notifies the responsible personnel in seconds.

## 1.1. Features

The Alert Messaging Server provides a lot of out-of-the-box functionalities for IT infrastructure integration and reliable alerting. Additional features can be activated via Add-Ons.

**Alerting via E-Mail, SMS and Voice**

Offers you three different alerting methods for a fail-aware environment. Engineers on duty can be alerted by E-Mail, SMS and Voice call (ISDN or VoIP).

**Acknowledge via E-Mail, SMS, Voice and Web Console**

All alerts must be confirmed by the responsible engineer. This can be done by E-Mail, SMS, Voice or the web-console.

**Creation of service schedules**

With the Alert Messaging Server you can create individual service schedules which can be assigned to several engineers. Further more blackout schedules (time periods where no alerts are sent out) can be defined.

**LDAP integration**

The Alert Messaging Server supports LDAP integration to easily import your user data from AD. A synchronization service keeps the data up-to-date.

**Integration into market-leading monitoring solutions**

The AMS offers integration into several market-leading monitoring solutions. Supported are e.g. WhatsUP gold, Realtech Network Manager/Service Center, Microsoft SCOM, HP OpenView Service Manager/Node Manager/Operations, NetIQ AppManager/Security Manager and Nagios. For the integration in Microsoft System Center, the System Center Orchestrator Integration Pack (QIP) is available.

### Escalation procedures

As it is possible that the current responsible engineer is not reachable (fault signal, no power), the AMS can be configured to re-alert the next responsible engineer in queue when no answer was recognized in a given time.

### Multi-client capability

The Alert Messaging Server offers the opportunity to create more than one tenant with separate configurations.

### Definition of user and user roles

The Alert Messaging Server's rights management is made up of single users and user roles. A user can be assigned to a role, which defines different access grants/denials.

### Alert & audit logging

All configuration changes and all sent alerts are being logged chronologically in the AMS database and can be reviewed and controlled via the web interface.

### Export of statistics

Statistics can be exported to CSV and PDF files.

### Database-driven configuration

The whole AMS configuration is stored in a SQL database (SQLEXPRESS/MS SQL Server).

### Administration via Web Console

The Alert Messaging Server is fully configurable via the web interface.

## 1.2. Add-Ons

Add-Ons extend the functionality of the Alert Messaging Server. The following Add-Ons can be enabled by license key:

### Follow the Sun

With the Follow the Sun model it is possible to automatically forward calls to the support center that is on duty dependent on the time of the incident.

### Voice Engine and DialogicCard

It is possible to alert persons by telephone call. A special Text-To-Speech Engine is used for playing alert messages via telephone. Alerts can be confirmed over the operator menu.

### Broadcasts

With the Alert Messaging Server, large groups of engineers can be alerted fast and convenient through the broadcast-feature.

### High Availability

High Availability can be achieved by installing 2 (or even more) instances of the Queue Manager Service / Alert Manager Service and by hosting the AMS database on a SQL cluster.

### SMS Radius

The SMS Radius Feature enables to send OTPs (One-Time-Passwords) per web request.

# 2. Architecture

The architecture chapter introduces the Alert Messaging Server's internal composition, describing its components, and how they are connected together. The Alert Messaging Server works only when all parts are working and connected together. The single parts can be on one specific machine or distributed on multiple hosts, connected via a network.

## 2.1. Components

The Alert Messaging Server consists of the following parts, where every single part is required for it to work.

### Alert Manager

The Alert Manager checks for new fault-messages and sends them to the responsible engineers using the modem and writes the status back into the database.

### Alert Manager Voice

Responsible for handling voice calls.

### Queue Manager

The Queue Manager receives fault-messages from one or more clients, writes them into the database and logs all incoming events. In short: It manages the fault-queue.

### Confirmation Manager

Executes command-line-actions after alert has been confirmed.

### LDAP Synchronization Service

The LDAP Sychronization Service keeps engineers and members of broadcast groups imported from AD up-to-date.

### MailToSMS

Converts Emails to SMS.

### AMS Client

The AMS client is a command line tool, which transfers fault-messages to the queue manager. In addition, some special commands can also be sent, like telling it to clean up the queue or perform a communication test.

### Web Console

The web console offers a front-end to the database, where the complete configuration and administration of the AMS takes place.

### Web Client

Enables sending alerts and querying the amount of unconfirmed alerts via Internet Browser.

### Database

The database stores the whole configuration and data regarding the Alert Messaging Server.

The following figure gives you a review of how the Alert Messaging Server is built and how it interacts with the client.

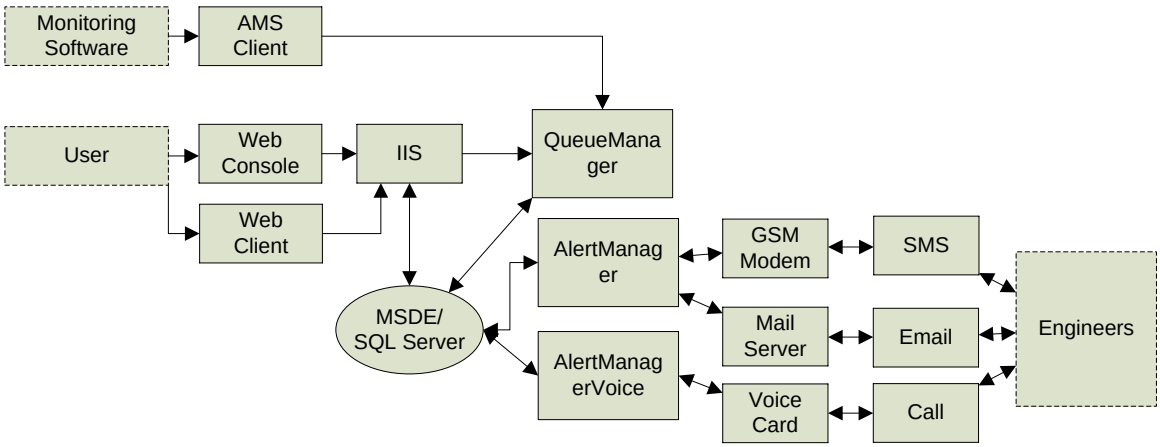


**Figure 2.1: The AMS Architecture**

Suppositional a monitoring system triggers the AMS Client. It sends the alert to the Queue Manager, which writes the alert into the database. If a user visits the web console, the data is queried from the database and all alerts can be viewed in the protocol. The web console can also be used for configuration settings. The Alert Manager periodically polls the database for new alerts received by the Queue Manager and sends them out depending on the specified destinations.

## 2.2. The Alerting Scenario

Following is an example of how the Alert Messaging Server helps your IT acknowledging any upcoming errors:

Any management software reports an IT problem to the Alert Messaging Server using the AMS client. If there would be a mail server black-out at this point, the information-chain would be broken and the problem would be notified way too late.

The Alert Messaging Server ensures that the responsible engineer gets notified within seconds by also sending out an SMS. If the responsible engineer is not reachable via GSM (fault signal, no power), a substitute gets notified automatically. All procedures are logged into the database.

A monitoring solution reports a mail server problem to the Alert Messaging Server. By just using email alerts, the alert queue would be broken. AMS ensures the alert delivery based on the service schedule within seconds. If there is a problem with SMS delivery to the first engineer in the queue, the alert will be sent to the standby engineer, defined in the escalation procedure. These steps are documented and can be reviewed any time. Within minutes the engineers can start to solve the mail server problem.

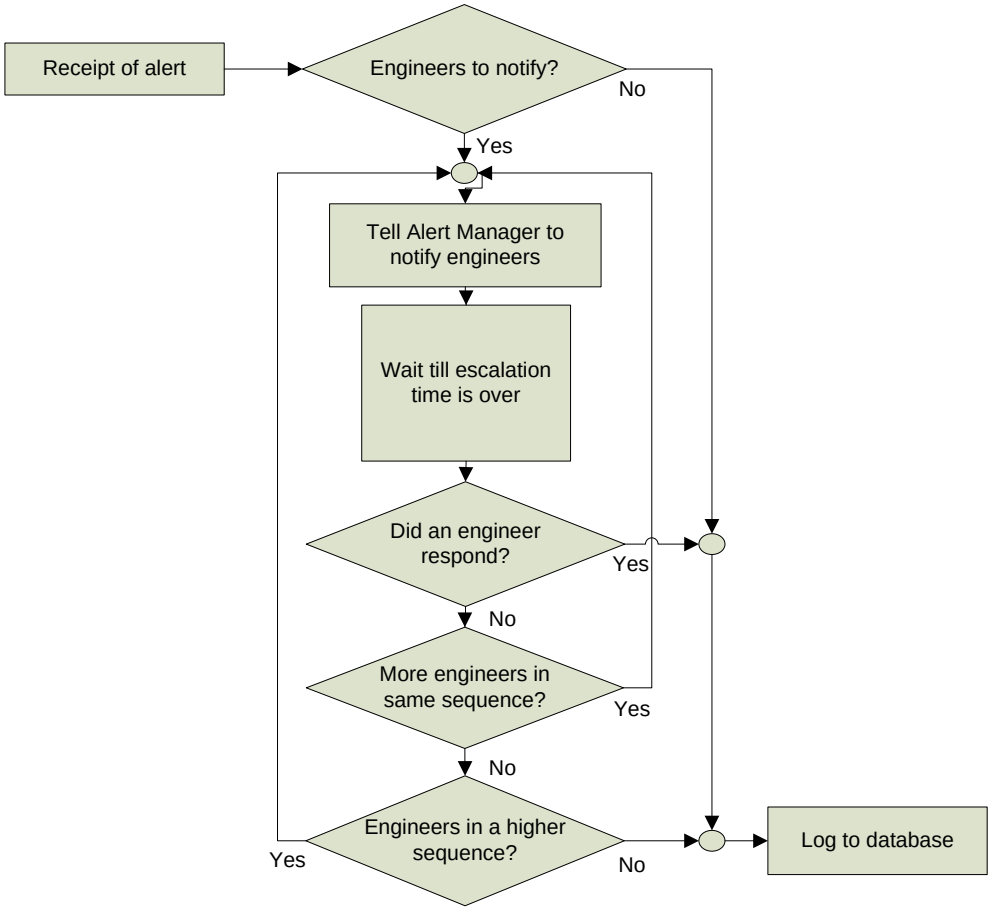


**Figure 2.2: The alerting workflow**

# 3. Licensing

The licensing model of the Alert Messaging Server is very flexible and mainly depends on the number of engineers that should be alerted. Extended functionalities can be activated by Add-On keys.

For questions regarding licensing please contact office@iqsol.biz

Timely limited trial versions can be supplied free of charge.

# 4. Suppliers

IQSol GmbH

A-3312 Oed 119

Tel.: +43 (676) 48 84 021

Additonal information:

Companies' register court St. Pölten

FB-Nr.: 223723f

UID: ATU55249207

Member of the Austrian Chamber of Commerce

For questions regarding sales please contact

office@iqsol.biz

# 5. Installation

All aspects according to the installation of the Alert Messaging Server are described in this chapter. It covers the system requirements needed in order to run the AMS, the setup steps in detail for the installation on a physical machine and the procedure when installing the AMS on a virtual machine.

## 5.1. System Requirements

Below you will find a list of the Alert Messaging Server's components and their specific requirements. To enable stable and reliable operating, it is strongly recommended to use the software only on systems with the given system requirements.

### Queue Manager, Alert Manager, Alert Manager Voice, LDAPSync, Confirmation Manager, MailToSMS

Windows 2008 R2 Server / 2012 R2 Server / 2016 Server / 2019 Server / 2022 Server
.NET Framework 4.5+

### AMS Client

Windows 7 / 8 / 10 / 11 / 2008 R2 Server / 2012 R2 Server / 2016 Server / 2019 Server / 2022 Server
.NET Framework 4.5+

Or: Unix/Linux

### Web Console & Webservice Client

IIS 7.5+
Internet Explorer 8.0+

### Database

SQL Server 2008 R2 / 2012 / 2014 / 2016 / 2017 / 2019 / 2022

### Hardware

Siemens TC35i or Cinterion MC52i GSM modem
A SIM-Card from the provider of your choice

Optional: Dialogic Diva UM-BRI-2 for voice calls

## 5.2. Prerequisites

To be able to use the AMS, the computer needs to have the following software installed:

- Microsoft .NET Framework 4.5+
- Microsoft Internet Information Server 7.5+
- SQL Server 2008 R2/2012/2014/2016/2017/2019/2022

**Microsoft .NET Framework 4.5+**

Microsoft .NET Framework 4.5 is included in the setup of AMS. If your computer is not running Microsoft .NET Framework 4.5, it is automatically installed while running the setup of AMS.

**Microsoft IIS 7.5+**

Microsoft Internet Information Server 7.5+ is not included in the installation pack. It must be added to the Windows Roles via Server Manager. The following role services have to be added:

- Static Content
- Default Document
- ASP.NET
- Windows Authentication
- IIS Management Compatibility

**SQL Server 2008 R2/2012/2014/2016/2017/2019/2022**

AMS is supporting the usage of SQL Server 2008 R2/2012/2014/2016/2017/2019/2022 as a database Server, as well as the appropriate versions of Microsoft SQL Server Express.

## 5.3. Installing on a physical machine

To install the Alert Messaging Server simply run the given installation file, or, if you got it on CD-ROM, point your explorer to the CD-drive and run setup.exe from there. Before running the setup, be sure that all pre-required software is installed correctly and a probably needed system reboot took place.

Starting the setup opens a wizard on your screen, which should be easy to navigate because the AMS setup detects most important settings by itself automatically. If you are unable to continue, look up the next step in the following step-by-step guide.

**Setup steps in detail:**

1. After starting the setup a welcome screen appears. Click Next to continue.
2. Please read the license agreement and accept it by choosing „I accept the terms in the license agreement“. If you do not accept the license agreement, the product may not be installed. Click Next to continue.
3. In the next window the user information needs to be (User- und Company name). Click Next to continue.
4. Now the installation directory is chosen. Default directory is C:\Program Files\IQSol\AMS\ .Click Next to continue.
5. In Custom Setup Window you are able to define the components, which should be installed on this machine. Click Next to continue.
6. Define the Database Server in the next window „Database Server“and the authentication mode. Click Next to continue.
7. Please specify the name and the port of the Queue Manager server and click Next to continue.
8. Click the Install button to continue the setup.
9. Click Finish, after the wizard has finished the installation of AMS.

## 5.4. Installing on a VMware virtual machine

**Remarks**: As a matter of principle all AMS components except the Alert Manager Voice service (because of the additionally needed PCI hardware component) can be installed on a virtual machine. For reliability reasons we also do not recommend the virtualization of the Alert Manager service.

Installing the Alert Messaging Server in a virtual machine basically equals the installation on a physical one, but needs some further configuration along with an extra hardware device before installing, in order to work. This is only required if the Alert Manager will be running in the virtual machine. The extra device is needed to enable the Alert Manager to communicate with the GSM modem. This is done by the Silex Series SX-500 Wireless/Wired Serial Device Server, which, if requested, is shipped with your Alert Messaging Server. The desired VM has to be equipped with a virtual serial port that’s mapped to a physical NIC which communicates with the Serial Device Server.

For a step-by-step guide to installing and implementing the Silex serial Device Server refer to 9.2 The Silex Serial Device Server.

## 5.5. Installation on a distributed system

To install the Alert Messaging Server on a distributed system, the shipped setup has to be executed on each involved system. During the setup procedure, only the components that should run on the specific machine have to be selected. Please note the specific system requirements listed per module in chapter 5.1 System Requirements.

Also make sure that no firewall is blocking the network traffic between the single components.

## 5.6. Further Installation Information

During Setup an SQL User is created on the chosen Database Server. This User is created for the AMS DB and is used for reading and writing the database. Per default, the user settings are as specified in the table below. It is highly recommended to change the user's password right after installation.

A table listing the default database settings is shown below:

| **Field** | **Default value** |
|---|---|
| User: | amsUser |
| Password: | AMS!user%9 |
| Default Database: | AMS |
| Database Roles: | -public<br>-db_owner |

Per default, all Alert Messaging Server related files can be found in %PROGRAM-FILES%\IQSol\AMS, the only exception is the web console, which is automatically placed into the IIS web root (per default this is C:\Inetpub\wwwroot).

After the installation, the Alert Messaging Server needs to be configured to meet your requirements. Detailed information on how to do this can be found in chapter 6 The Web .

# 6. The Web Console

The web interface is the central configuration and monitoring utility of the Alert Messaging Server. From here you can add, edit or update Engineers, Departments, Failure classes and some more settings. It also enables you to review already occurred alerts and their status, define absences, view statistics and self-test the application. It can be accessed via browser by http://Servername/AMS whereas "Servername" is the hostname or IP address of the server where the web components are installed. The following pages provide you a step by step introduction of all menu items and what they do.

## 6.1. Super-Administrator Options

The Super-Administrator or Sadmin is an instance above all tenants that manages all underlying tenants, some global system settings and licensing. When installing the Alert Messaging Server, the default Sadmin-User is created. Per default, the username is Sadmin and the Password is Sadmin (case-sensitive, mind the capital S). The client field remains blank.

No tenant is created per default – here is where the Super-Administrator comes into operation. As mentioned above, log in with Sadmin/Sadmin (no client) and find yourself on the welcome page of the web console. Use the menu on the left side of the screen to navigate through the different setup pages.

On the dashboard view in the middle of the screen you will find the license limitation defined by the Super-Administrator. This is the maximum amount of engineers you may use with each client.

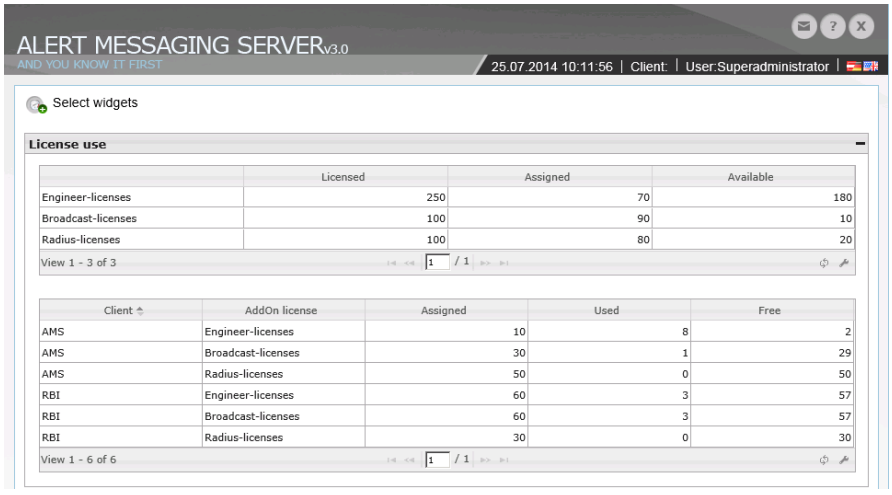


**Figure 6.1: License limitation information**

### 6.1.1. System-wide Options

In the System menu you will find global options like the Alert Messaging Server's sender label and address and the license management tab. The email related settings will be copied to the tenant-specific mail server settings and can so be altered per tenant. After entering a valid license key, the license distribution tab lets you spread your engineer licenses over all available clients. To do so, simply select a client from the dropdown list and assign (or remove) the amount of licenses you want.

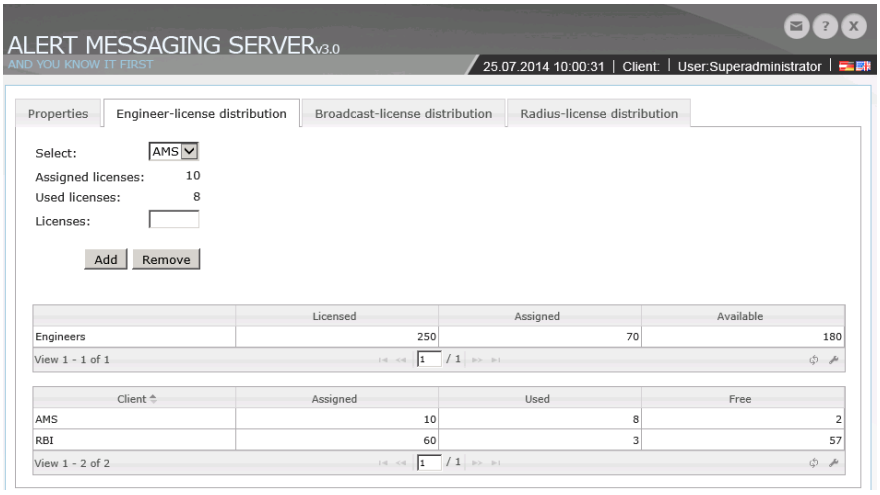


**Figure 6.2: System-wide configuration options**

### 6.1.2. Client configuration

To add, edit or remove one or more tenants, simply navigate to the client menu. To add a tenant, fill in the form provided in the "Create" tab. It is recommended to use a descriptive name to keep maintainability; it is required for the name to be unique, though. Please note that a tenant itself does not consume a license, license-consuming are just the engineers and broadcast group members specified for the single tenants.

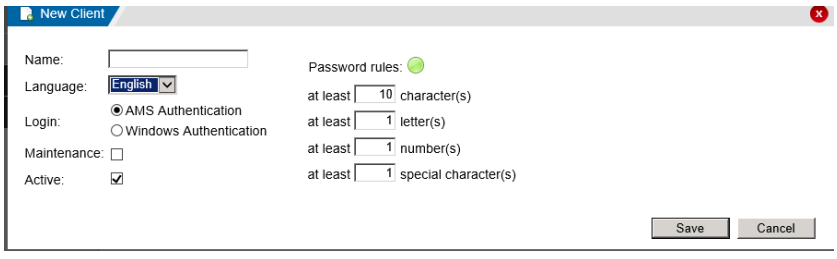


**Figure 6.3: Client Options**

Checking maintenance avoids e-mail and SMS notifications to be sent to engineers, but logs occurring events into the alerting protocol. This makes sense when the tenant's specific schedules, departments or engineers are going through a larger restructuring. Setting the tenant to inactive is required to delete

a tenant. This setting is also intended for longer inactivity of a client. Tenant-specific users are still allowed to log on to the web console.

### 6.1.3. Users

The User menu lets you create multiple users with Super-Administrator functionality. In Super-Administrator mode, this menu does not let you create, edit or update tenant specific users. It is recommended to change the default Sadmin password as it is not secure by default. To do so click on the change icon on the Sadmin entry listed below the form and type in a new password twice. Any newly entered password has to comply with the password rules as specified right to the input field.

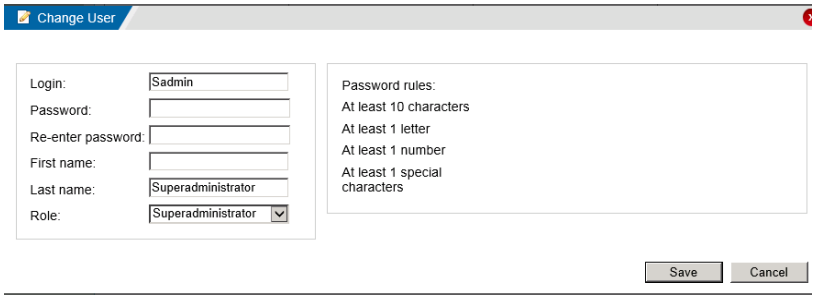


**Figure 6.4: Super-Administrator User Options**

### 6.1.4. Audit

To review recent Super-Administrator activities in the system, navigate to the audit menu. This menu offers you a table showing any activity that took place in the past. Along with the filter controls, it delivers a powerful method to determine who did what at what time.

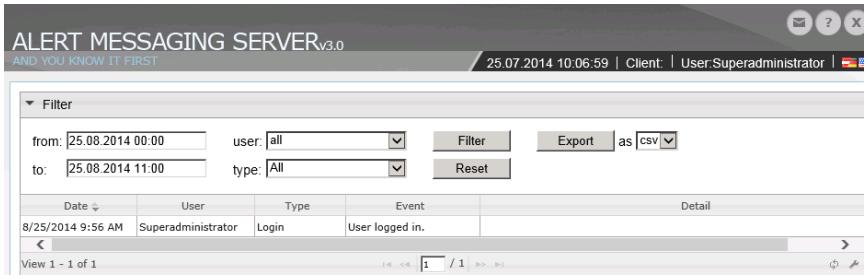


**Figure 6.5: Super-Administrator Audit Log**

### 6.1.5. Support Capture

In this section you can create a ZIP file including a DB capture, event logs and system information. It is also possible to do a restore with the DB capture.

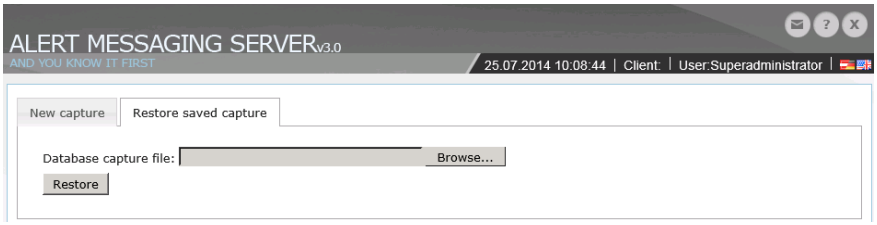


**Figure 6.6: Support Capture**

# 6.2. Administrator Options

The Administrator or Admin is a client-wide user that is automatically created upon adding a new tenant. After adding a new client as Super-Administrator, logging on with Admin/Admin (case sensitive, capital A) and the specified tenant name is possible. You will find yourself again on the welcome page, but with a largely extended menu offering all tenant-wide customization options of the Alert Messaging Server.

On the following pages you will find a detailed description to each menu item along with some configuration hints and best practices.

## 6.2.1. AMS-Clients

AMS-Clients are the components that bring in alerts to the server, usually triggered from a supported monitoring application like IPSwitch WhatsUpGold, NetIQ AppManager and many more. For a list of supported monitoring applications please refer to the Alert Messaging Server Integration Guide. Every new AMS-Client has to be registered on the server in order to issue commands to the Queue Manager. To successfully install an AMS Client the following steps have to be made:

1. Copy the shipped ams.exe (the AMS-Client itself) onto the server
2. Navigate to the AMS-Clients menu on the web console.
3. Enter a descriptive and unique profile name, the host's IP address the client should run on, and the ip/port of the host the Queue Manager runs on. If you activate "Maintenance" all alerts triggered by that affected client are logged but not sent out. Flood detection can also be activated on demand.
4. Click Create to register the client.
5. You will see a new line below the form with the information you just entered. On the right side of that entry you'll see an icon labeled with "Download configuration file" – click that link and save the AMS.exe.config file offered for download.

6. Paste the AMS.exe.config file into the same directory as the ams.exe on the host it should run on.

7. You can optionally test if the connection to the Queue Manager can be established by opening ams.exe with parameter –t. If the Queue Manager responds “OK!” the setup was successful.

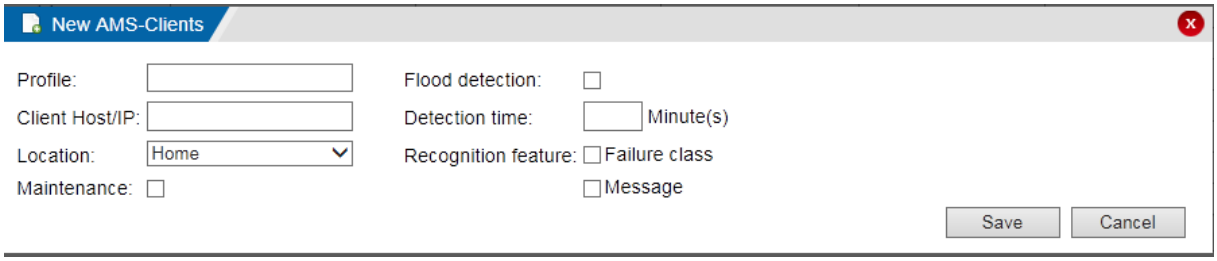


**Figure 6.7: AMS-Client options**

## 6.2.2. Mailserver

To send email notifications you have to add a mail server in the web-console configuration. Make sure there is a valid mail account present on the server, to enable e-mail notifications. For testing purposes, e-mails can be sent to the specified test-address by clicking the mail-icon in one of the listed entries. When clicking this icon, a notification is sent to the queue manager and furthermore to the alert manager, that commands the mail server to send an e-mail to the listed engineer. If the engineer you sent an e-mail to doesn’t receive an e-mail within minutes, there is most likely a problem with the Mailserver or with the communication between Queue Manager and Alert Manager (if they are not installed on the same machine).

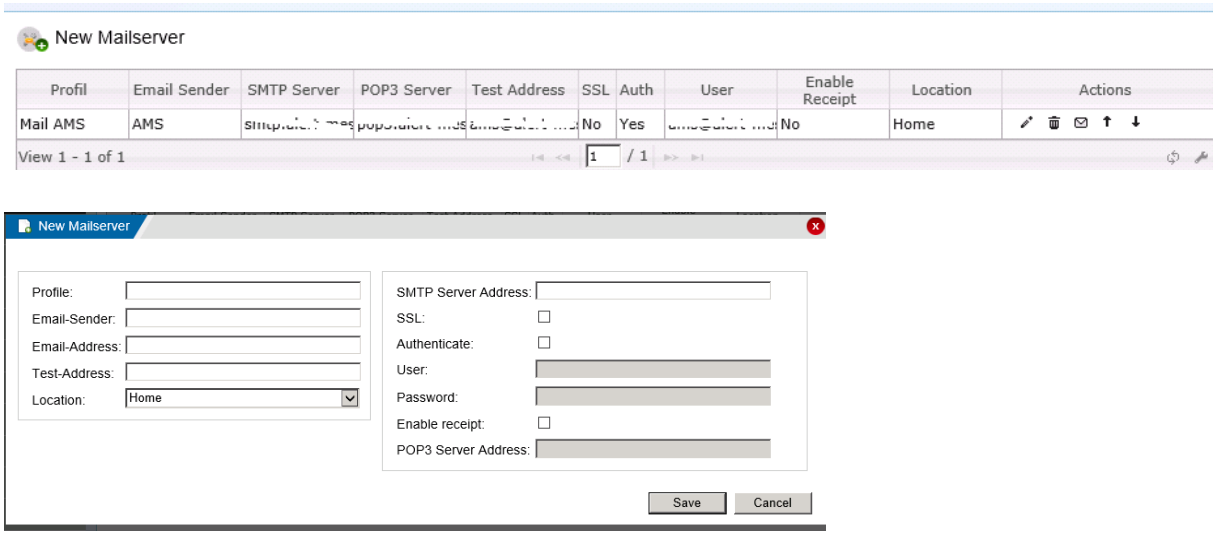


**Figure 6.8: Mailserver Options**

### 6.2.3. GSM-Modem

The “GSM-Modem” menu item allows you to configure the GSM modem used by the Alert Messaging Server to send SMS notifications. Simply type in a descriptive and unique profile name, specify the COM-Port on which the modem is attached to the host and enter the modem’s PIN. Optionally, you can specify a Test-Number where Test-SMS will be sent to. To send a test-SMS to the previously defined mobile number, click on the mail-icon, next to one of the listed entries. When clicking this icon, a notification is sent to the queue manager and furthermore to the Alert Manager, that commands the GSM modem to send an SMS to the specified mobile number.

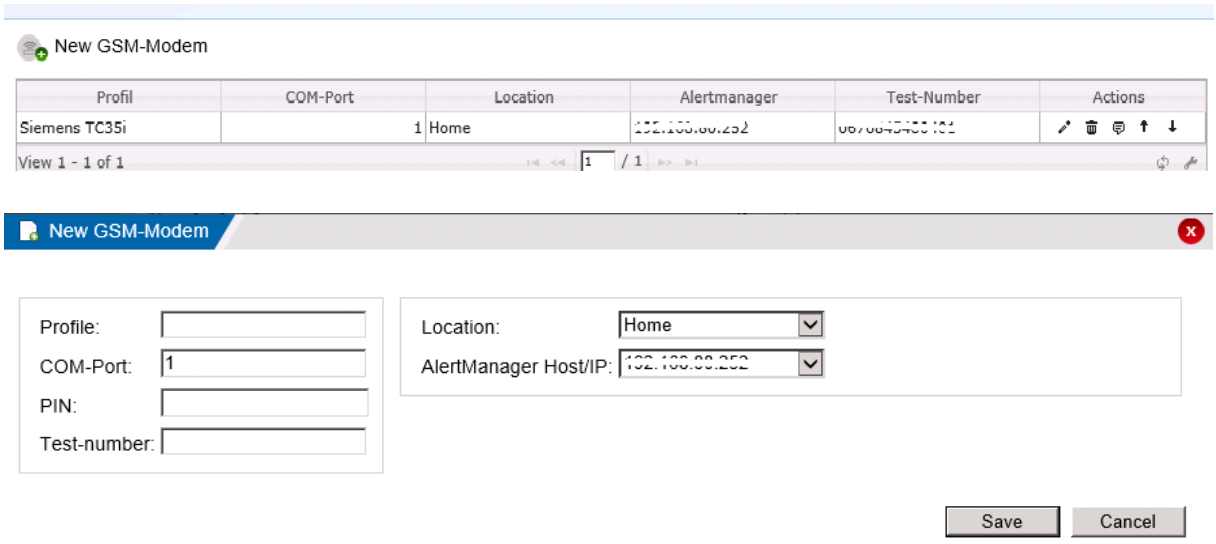


**Figure 6.9: GSM Modem Options**

#### Support of sending alerts via more GSM provider

To avoid sending failures it is now possible to create more than one modem profile. A special fallback procedure sends the alert via the second modem if the first fails.

### 6.2.4. User

The user menu lets you create, update or delete users for the web console. These users are only valid for the current client, and cannot view any configuration from another one. User-Rights are maintained via user-roles, which are described in the next chapter. But keep in mind that a user-role has to be applied to the user and the default role is “Administrator”.

When creating or updating a user, make sure the specified password complies with the Alert Messaging Server’s password restrictions. Also note that removing the default administrator user is prohibit-

ed, but renaming and specifying a new password is allowed (and advised, as the default settings are not secure).

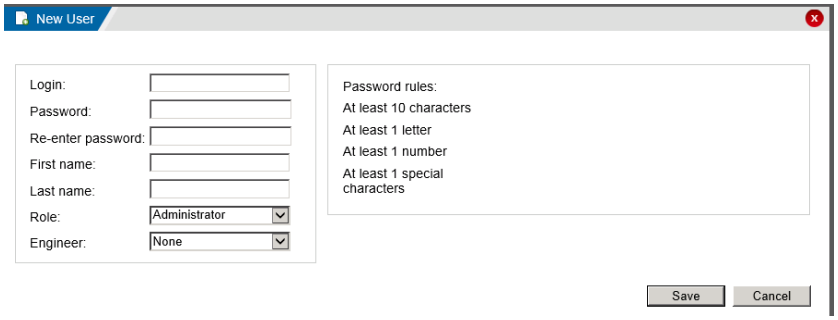


**Figure 6.10: User Options**

A User can be directly connected to an engineer, which makes sense if engineers are allowed to log on to the web console. If a user is connected to an engineer entry, only the alerts according to this engineer are shown in the alerting-protocol. This can be overridden by granting the engineer user group the right “All Alerts” in the user roles menu.

### 6.2.5. User Roles

The menu „User roles“ allow you to manage user-rights by the help of roles. Roles allow you to give multiple users the same rights with ease, by applying them a role. By default, there are two roles available: Administrator and User. Users in the Administrator group are able to view and alter the whole configuration of the Alert Messaging Server, which is why this role should only be applied to Administrators. Users in the User group have very limited rights; they may manage the mail server, the GSM modem and the AMS clients. The service schedule e.g. is not visible for those users. New user roles can be defined (for example for different departments) either based on an existing role or from scratch. All there is to do is check the boxes next to the listed menu items.

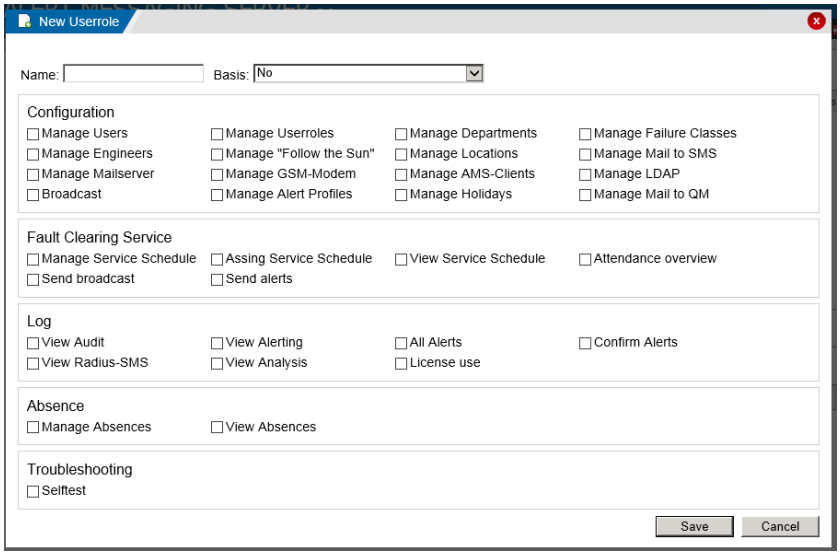


**Figure 6.11: User-Roles Options**

The table below shows what consequence each single setting has:

| **Setting** | **Consequence** |
|---|---|
| Manage Users | Enables the user menu to create, update or delete users |
| Manage Userroles | Enables the user roles menu to specify new roles or alter existing ones (even the administrator role!) |
| Manage Departments | Enables the Department menu |
| Manage Failure Classes | Enables the Failure Class menu |
| Manage Engineers | Enables the Engineer menu to create, update and delete engineers |
| Manage “Follow the Sun” | Enables the “Follow the Sun” menu |
| Manage Mailserver | Enables the Engineer menu to create, update and delete mailserver-entries |
| Manage GSM-Modem | Enables the Engineer menu to create, update and modem-entries |
| Manage AMS-Clients | Enables the AMS-Clients menu to register new clients, and edit or delete existing ones |
| Manage LDAP | Enables the LDAP menu, Engineers may be added through |

| | |
|---|---|
| | LDAP even without the “Manage Engineers” right |
| Broadcast | Enables the Broadcast menu |
| Manage Absences | Enables the Absence menu |
| View Absences | Enables the Schedule of Absences menu |
| Manage Service Schedule | Enables the Service Schedule menu |
| Assign Service Schedule | Enables the Assignment menu |
| View Service Schedule | Enables the Overview menu |
| View Attendance | Enables the Attendance menu |
| Send broadcast | Enables the Send broadcast menu |
| View Audit | Enables the Audit menu |
| View Alerting | Enables the Alerting menu |
| All Alerts | Allows users to see alerts for all engineers (see 6.2.4 User) |
| Confirm Alerts | Enables the acknowledge button in the alerting protocol |
| View Analysis | Enables the Statistics menu |
| License Use | Enables the License Use menu |
| Selftest | Enables the Selftest menu |

### 6.2.6. Departments

The Department menu allows you to create, edit and delete departments and to group several engineers, for example by application area. These groups can be administrators of exchange, of active directory or whatever structuring you wish. The here defined departments are used in the Failure Class menu and assigned to a specified dysfunction. That way, alerts can be set up according to the various applications and assigned to the appropriate department.

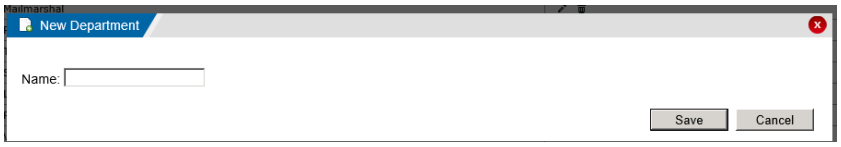


**Figure 6.12: Department Options**

### 6.2.7. LDAP

One of the brand new features of the Alert Messaging Server v1.2 is the LDAP integration, which provides a very convenient way to integrate engineers into the AMS. To enable LDAP support, a valid connection to the domain controller is necessary. To specify the domain controller, switch to the settings tab and enter the information the AMS asks for. The Server field accepts an IP address or a hostname, SSL has to be checked when LDAPS is used. When credentials need to be supplied, authentication has to be checked and username/password information has to be entered. The Alert Messaging Server supports Active Directory, OpenLDAP and Novell eDirectory as of version 1.2.

Complete the form with the fully qualified domain name and click analyze. Clicking the analyze button creates the LDAP connection string using your input. The generated string is shown in the LDAP-Path field and can be modified (for example to strip down the results to users only by adding CN=Users).

The test button lets the AMS test, if a connection to the LDAP server can be established and if the domain information is correct. It will provide feedback by either responding Test successful or an error message (for example object does not exist, if the domain information provided was incorrect).

By clicking the save button the LDAP data gets collected and can be viewed from now on in the groups and users tabs. The group tab enables you to easily find users by clicking the magnifier icon on the left of the entries.

The Users tab lets you add engineers to the system by marking the entry as checked and clicking the add button in the filter control section. If there are enough free license-slots, the added engineers can now be found in the engineer menu. Please also note the synchronize button in the engineer menu right to the entries newly added from LDAP. This button lets you sync the engineer's details, when an LDAP update has been performed. Furthermore AMS 2.0 offers a LDAP synchronization service (AMSLDAPSync) which automatically imports data from AD every 720 minutes (12 hours). The interval can be changed via the AMS Configurator (located in the LDAPSync subfolder under the installation directory) as needed.

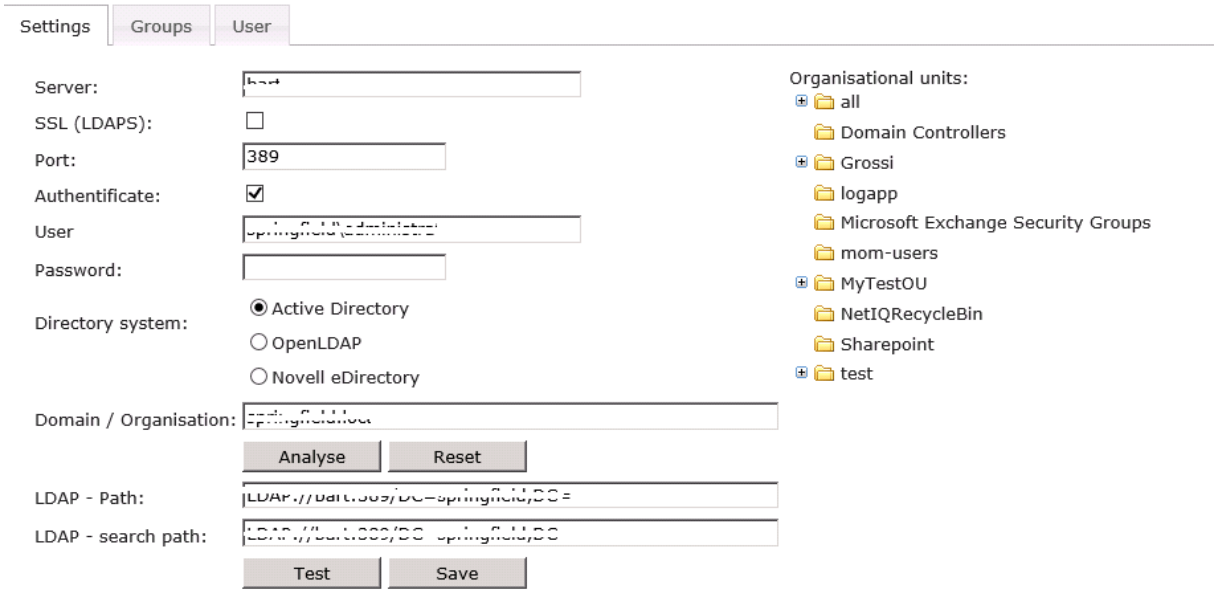


**Figure 6.13: LDAP Integration Options**

Keep in mind that the following LDAP Details (see table below) will be read and therefore be inherited into the AMS configuration. Unset fields will be left blank in the AMS field. LDAP User entries that do not have any of the important fields set, will be shown as a blank row in the LDAP User preview, therefore it is necessary that at least the name is set in you LDAP configuration. Importing such an empty or half-empty entry is still possible, but the engineer will be set to inactive until you provide the needed information.

| LDAP Field | AMS Field |
|---|---|
| General/Last name | Last name |
| General/First name | First name |
| General/E-Mail | E-Mail |
| Telephones/Mobile | SMS-Nr. |
| Organization/Department | Department |

## 6.2.8. Failure Class

This menu lets you create new failure classes and assign them to a specific department (for example to send alerts according to active directory directly to proper administrators). A failure class also needs a specific escalation time, which defines how long a notified administrator may need to answer a sent alert. If a notified administrator does not answer in the given escalation time, the Alert Messaging Server determines who is next in line to notify and sends the same alert to the next responsible admin-

istrator. By entering a custom, specific Email-/SMS/Voice-Text or path to a WAV-file, proper notifications are done with ease. The field “SMS repeat” defines whether the SMS should be sent more than once during escalation time. Via the appropriate checkbox escalation from SMS to voice is possible. Furthermore it is possible to send alerts delayed (tab Alert delaying), to trigger actions when alerts are confirmed and to specify blackout schedules during which no alerting is done.

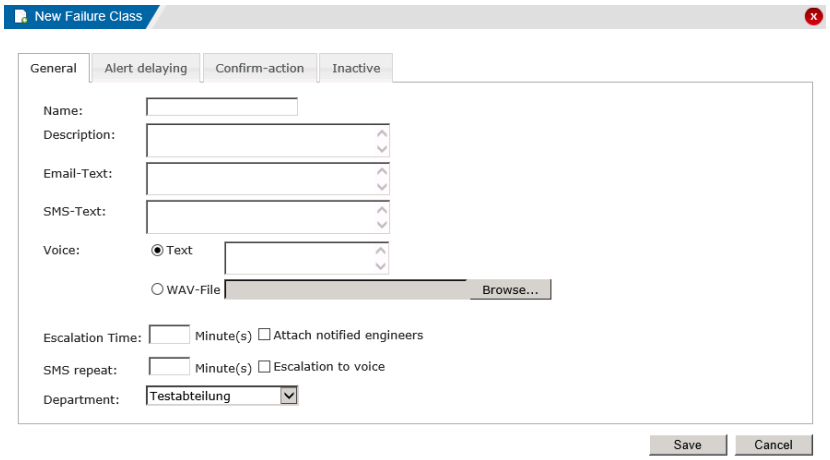


**Figure 6.14: Failure Class Options**

## 6.2.9. Engineer

Offers options to create edit and delete engineers and assign them to one or more specified departments. For each newly created engineer, one or more Email addresses, mobile-numbers for SMS and telephone numbers for voice calls can be applied. This information is needed to send notifications. Setting an engineer to inactive will stop the Alert Manager to send any notifications to that technician, but he/she still consumes a license. To free a license that’s already in use, an engineer needs to be deleted. Test-Emails and Test-SMS can be sent using the according icons in the list of engineers (the mail icon next to the e-mail address or the mobile icon next to the mobile number).

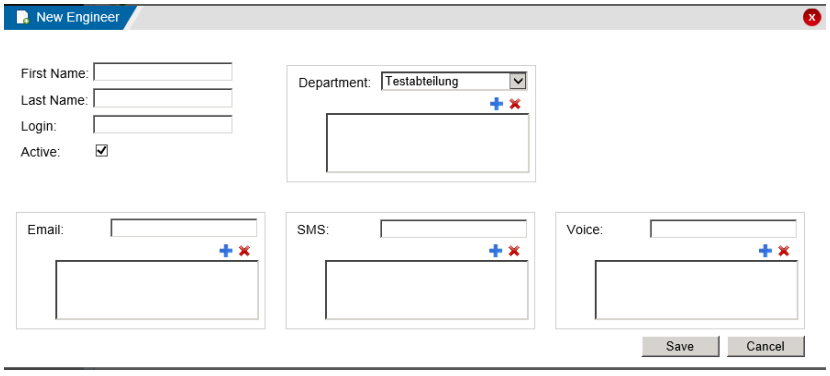


**Figure 6.15: Add new Engineer**

If an engineer has been added using the new LDAP feature, you will notice a small synchronize button right to the entry. This button allows you to update the engineer's entry with the up-to-date information from your LDAP directory.

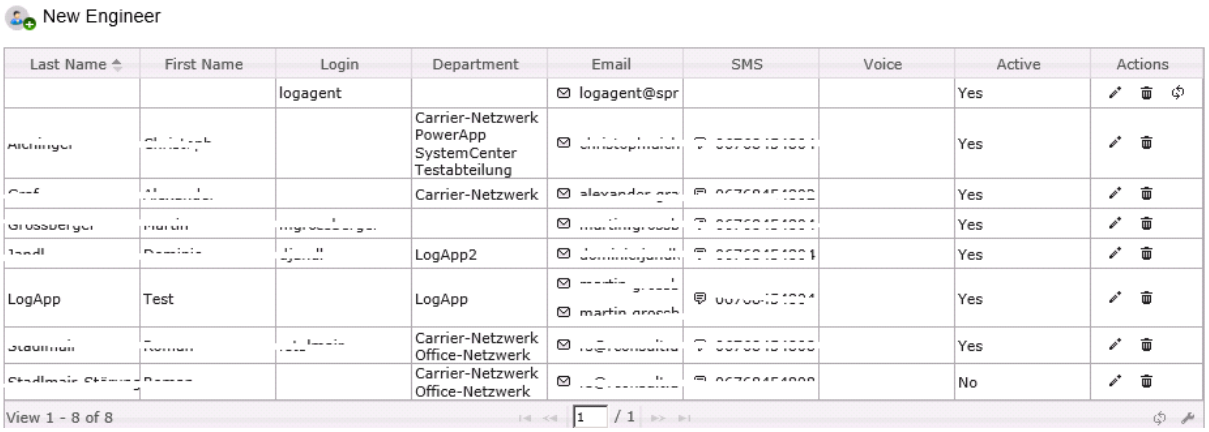


**Figure 6.16: List of Engineers**

## 6.2.10. Broadcast

The broadcast menu covers another new feature of the Alert Messaging Server. From here you can define large groups of engineers to alert. You can either regroup registered engineers by adding them from the dropdown-field or enter other broadcast-members by typing in the information required. Mixing those two is also possible. Note that the total number of all broadcast members is limited by the broadcast license.

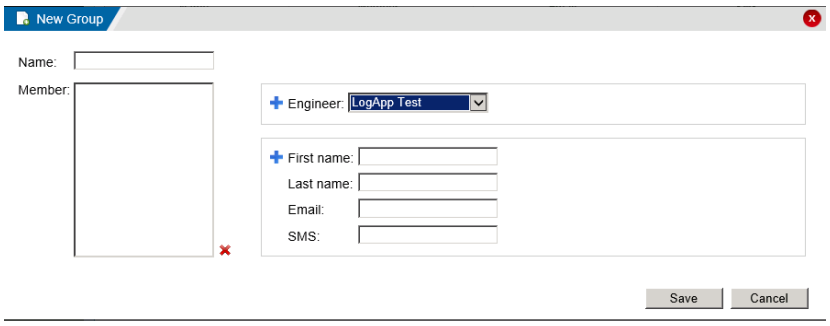


**Figure 6.17: The Broadcast form**

The Broadcast menu is intended for special alerts or informational messages to a large group of engineers. It is based on a fire-and-forget principle and does not reply any status message to anyone who received the notification and who did not. Its only purpose is to reach a large group within a small time-span.

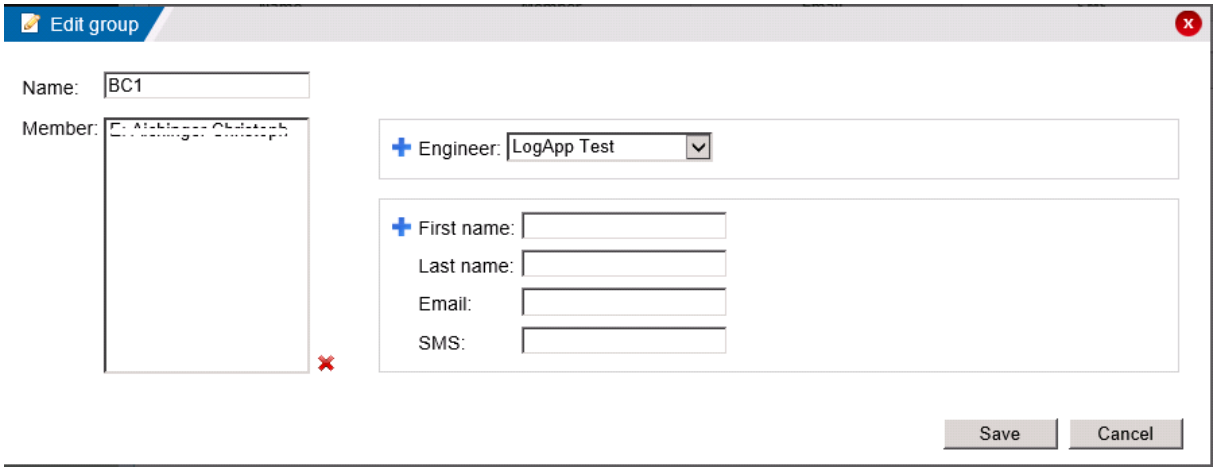


**Figure 6.18: A sample Broadcast entry**

After creating a group, a broadcast entry can be fired every time you wish by simply logging on to the AMS, navigating to the Broadcast menu and switching to the send tab. Enter some descriptive alert text to inform the engineers and click send to start heating up the modem.


**Figure 6.19: Sending Emails and SMS to a Broadcast group**

## 6.2.11. Service Schedule

The Service Schedule menu (combined with Assignments, Failure Classes, Departments and Absences) is one of the most complicated parts. To successfully configure the Service Schedule and its assignments, a well-structured and defined on-call service schedule for your company is necessary. It allows you to control the workflow when an alert occurs. The Service Schedules and their assignments specify what technician is at what time (date and time) responsible for which alert, and if the whole department should be notified.

The service schedule menu lets you create schedules for each failure class. You can define as much time spans as you need, for each day of the week. The schedule starts from a defined start week and is valid until a defined end date or forever. For each newly created service schedule, a unique, consecutive number is used.

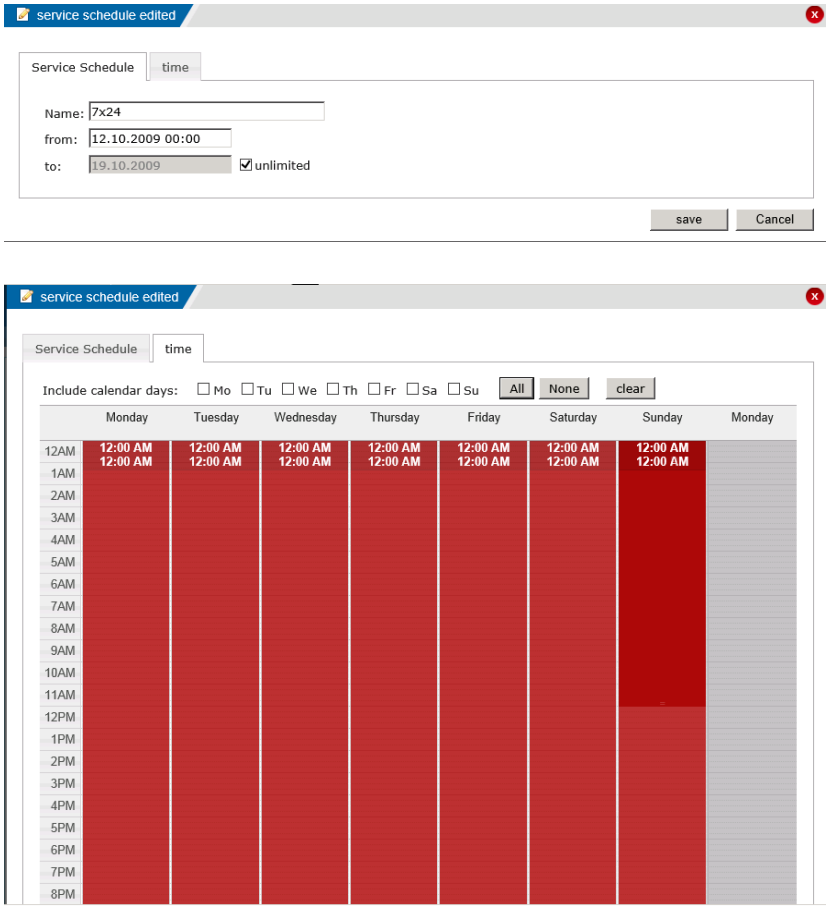


**Figure 6.20: Service Schedule Options**

To create a service schedule, the following steps are required:

1. Switch to the “Create” Tab in the Service Schedule menu and enter a descriptive, unique name (it is recommended to name the schedule somehow according to the failure class it’s intended for). Enter a start-, and end-date (if required). Click Create.

2. Check the list of available service schedules for your newly created one and click change to the right of the entry.

3. Select the time-span and days you wish the schedule to be active and click add. You can do this several times with different days and time-spans if you need more flexibility. To edit a falsely defined or old time-span click on the violet boxes marking it and edit it. To remove all entries for a day, click on the remove icon right to the weekday-label on top of the table.

4. The service schedule table should now be filled with markers according to your input. Done.

Now that you have created a service schedule according to your needs, it should be assigned to engineers or departments, as it would not be of good use otherwise.

## 6.2.12. Follow-The-Sun

If you want to offer a 24-hour-service to your customers and you are a global player, the Follow-The-Sun support of AMS will help you. The follow the sun model is aimed at creating a 24 hour virtual workday for your organization. In this model when the operations of one center goes off, the other center take over the responsibility for the next shift. Thus, for your customers it means that your organization is online 24 hours a day. Calls are automatically forwarded to the support center that is on duty dependent on the time of the incident.

In the Follow-The-Sun menu you can specify custom text entries for E-Mail, SMS and Voice alerts (or WAV-file) and define your service schedules. The Follow-The-Sun function can only be activated if the defined service schedule covers 24 hours. Note that there's no escalation by FTS alerts.

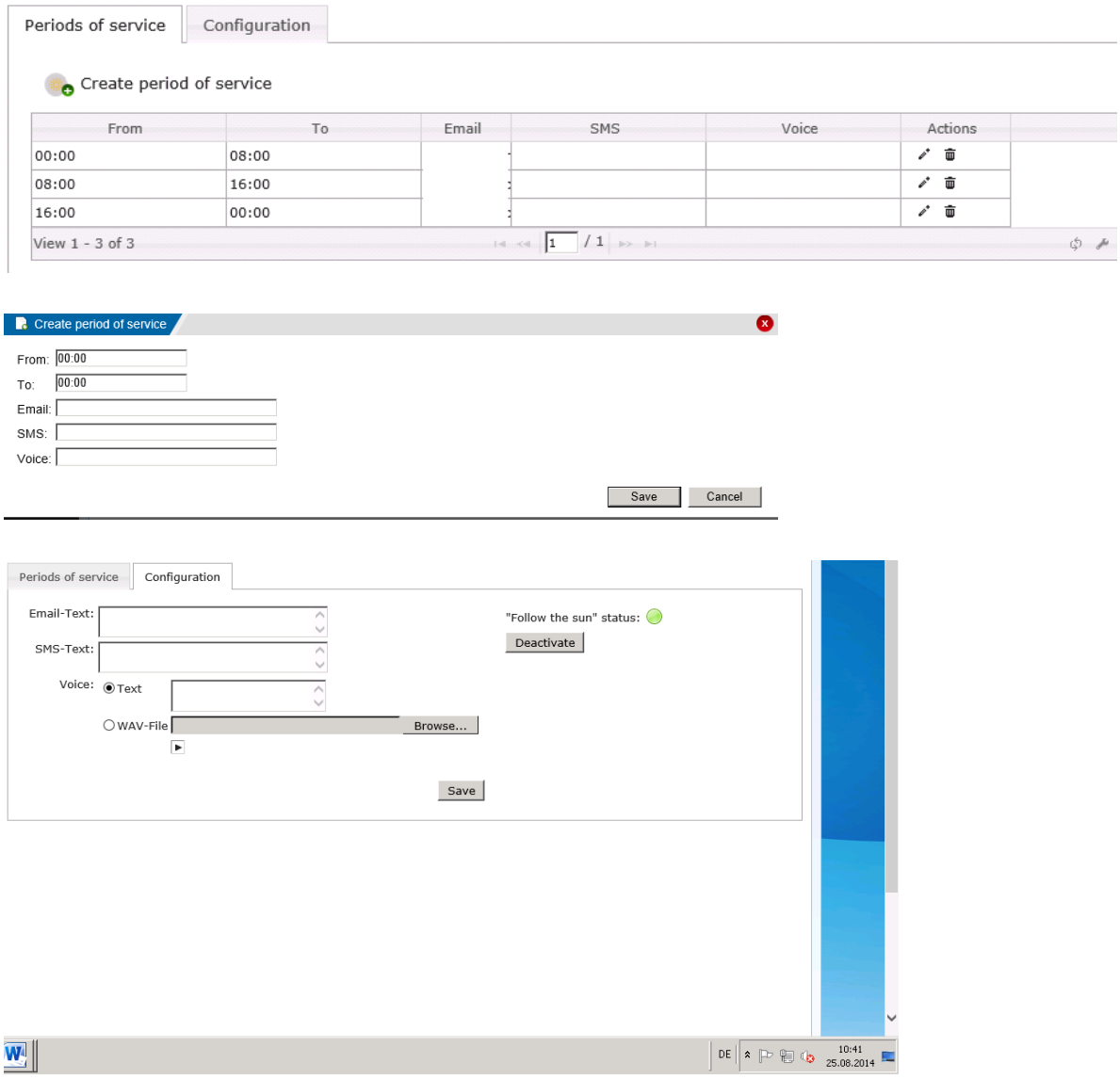


**Figure 6.21: The Follow-The-Sun Menu**

## 6.2.13. Assignment

In menu assignment, the service schedules can be applied to a specific engineer or department, depending on what level you wish to operate. The connections between service schedule and single technicians or departments are handled here.

### Assignment on engineer-level

Allows you to assign service schedules to single technicians; more schedules can be added by pressing CTRL and clicking on the entries.

### How to assign a service schedule

1. Choose the Engineer via the Drop-Down menu
2. Select the available service schedule(s) listed in the “available service schedules” List Box-element
3. If required, define the sequence (see below); specify a start date and the repeat interval.
4. Specify a start date and a period
5. By clicking the grey arrow pointing to the right, the selected service schedule gets assigned to the engineer/department

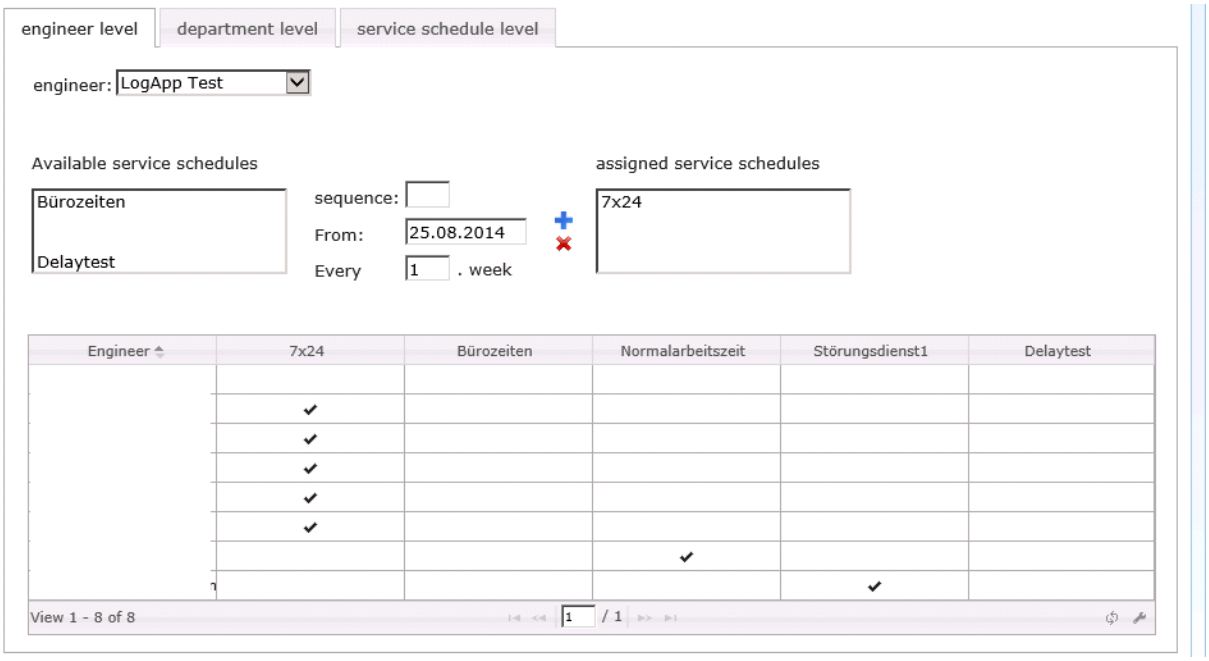


**Figure 6.22: Assignment on Engineer Level**

### Sequencing

Sequencing means defining the escalation grade of an engineer. Per default, this value is set the same on each engineer. By entering a numeric value the engineers are put into groups with the same sequence. Within a group of engineers with the same sequence, the escalation procedure makes use of the round robin distribution scheme. At first, the group with the lowest sequence is being alerted, if all engineers of that group have been notified, the Alert Messaging Server escalates in the next group with the superior sequence number (using the round robin distribution scheme) and so on. Engineers without a given sequence are also put into a group and are of lowest priority. Please keep in mind that the current alerting-sequence changes only when an alert got acknowledged, which means that the current notification-order keeps the same when no confirmation is sent.

The following example should clarify the sequencing workflow:

Given 4 engineers (Engineer A, B and C with sequence 1 and Engineer D with sequence 2)

### Alert 1 occurs

Engineer A, B, C and D are being alerted, no one acknowledges

### Alert 2 occurs

Engineer A gets notified and acknowledges within the given escalation time

### Alert 3 occurs

Engineer B, C, A and D are being alerted, no one acknowledges. Note the change of the sequence-order (one acknowledge has been received, so the alerting-order has been changed within the group with sequence one)

### Alert 4 occurs

Engineer B, C, A and D are being alerted, no one acknowledges and therefore no changes take place in the sequence-order

### Alert 5 occurs

Engineer B and C get notified, C acknowledges

### Alert 6 occurs

Engineer A, B, C and D are being alerted, no one acknowledges (another acknowledge has been received, alerting-order has changed again)

### Alert 7 occurs

Engineer A gets alerted and acknowledges

### Alert 8 occurs

Engineer B gets alerted and acknowledges

### Alert 9 occurs

Engineer C gets alerted and acknowledges

## Assignment on department level

The assignment on department level works nearly the same way as on engineer level, with the only difference that there are whole departments to choose and assign. So, for example, an alert addressing the Microsoft Exchange Server can be assigned to a department “exchange support”, which holds responsible engineers.

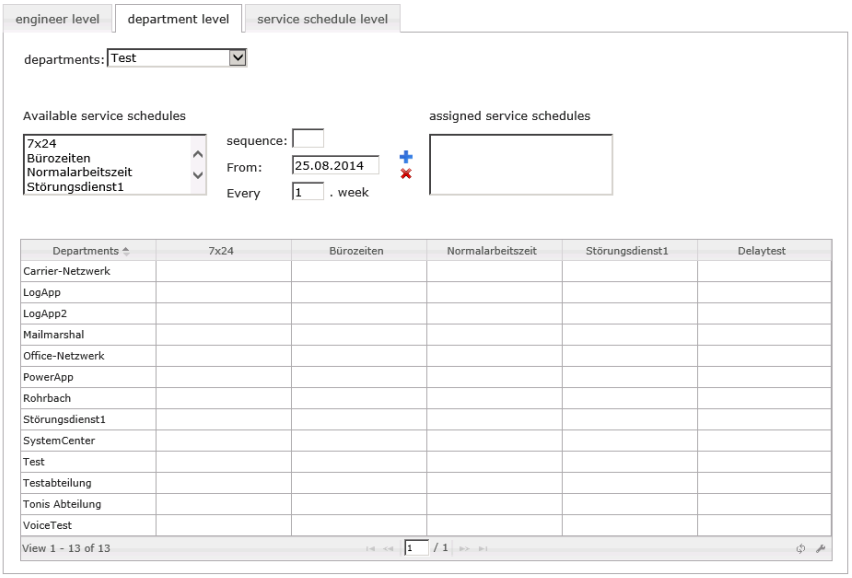


**Figure 6.23: Assignment on Department Level**

## Assignment on service schedule level

Based on the service schedule itself, single engineers and/or whole departments can be assigned to the chosen schedule. Simply select one or more available department(s) and/or one or more available engineers to assign them to the service schedule selected from the dropdown list on top.

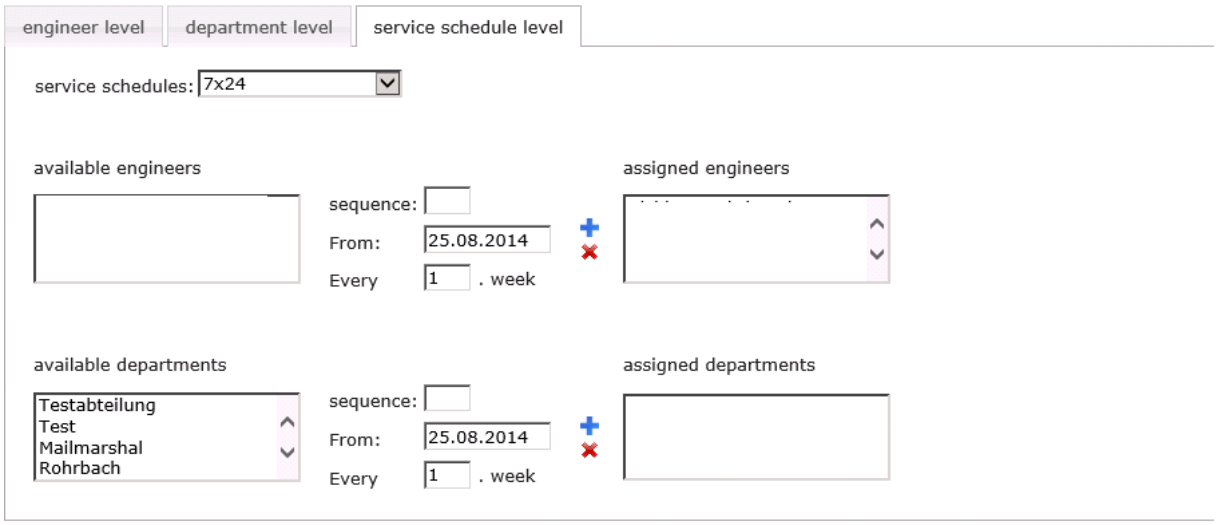


**Figure 6.24: Assignment on Service Schedule Level**

### Assignment Overview

Below the options for assigning a service schedule, a table is shown when on the engineer level or department level tab. This table offers an overview about what engineer or department is assigned to what service schedule. Above that table filter options are displayed, allowing you to shrink the table to the dependencies of interest.

## 6.2.14. Overview

This menu offers a schedule overview to detect misconfiguration in a fast and convenient way. It shows all active service schedules in a preselected time span, which can be altered using the filter controls on top of the page. Those filter controls also enable you to strip the table down to a specific department or engineer. Each service schedule has its own color to keep it simple, what color belongs to what schedule can be seen by the legend on top of the table.

## 6.2.15. Attendance

This menu is also new in version 1.2 and provides a very convenient way to check within one second who's on duty at the moment. Previous versions required you to step through the single schedule overviews to get that basic information, call this history with version 1.2. Simply select the date and time you wish to know who's on charge and optionally filter by failure class to shrink the table below.

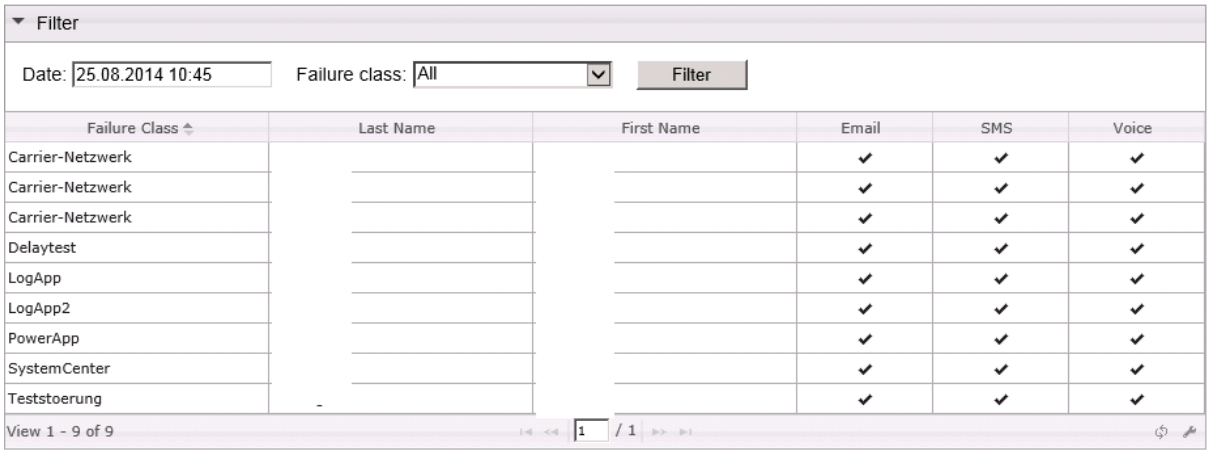


**Figure 6.25: Attendance overview**

## 6.2.16. Absence

The absence menu allows you to set a substitute for an engineer for a specified amount of time or even unlimited. This is intended for vacation or an engineer being away sick. It's prioritized to the continuous service schedule and will be checked before an alert is sent. For example if engineer A is on duty at the moment but has to stay away sick, an absence can be entered to substitute engineer A with engineer B for two weeks. If done so, engineer B gets notified instead of engineer A in case of an alert. If no substitute is set, no one replaces engineer A and if there's no other engineer scheduled at that time, no one will get notified. As this may result in a critical alert that doesn't get recognized at all, it's recommended to specify a substitute.

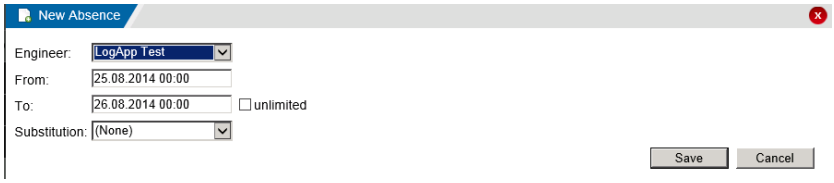


**Figure 6.26: Absence Options**

## 6.2.17. Schedule of Absence

The schedule of absence menu offers an overview of all defined absences (for all engineers). Per default, a table showing the days of the current weeks is displayed. Custom filtering allows you to increase or further decrease the number of days displayed, the displayed times or to just print an overview for a specified engineer or department.

If an absence has been entered for the displayed week, the time and day of the absence are colored. If more engineers are absent at a given time, a tooltip is shown displaying the number of absent engineers on hovering the mark.

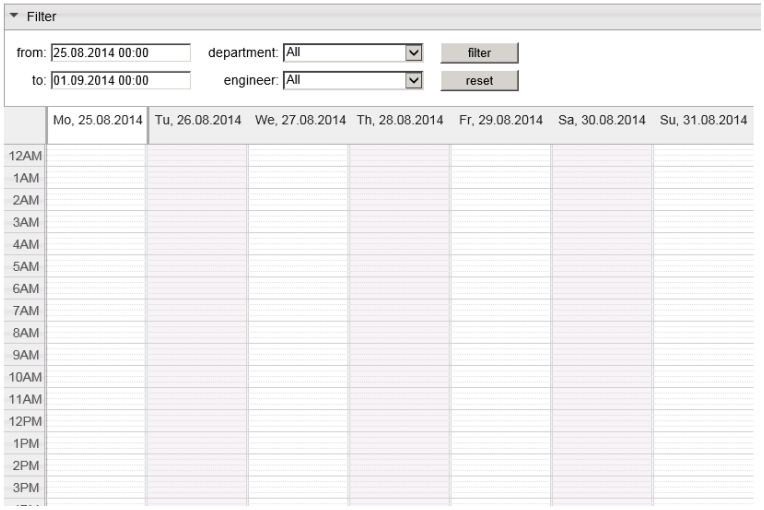


**Figure 6.27: Absence Schedule overview**

## 6.2.18. Audit

The audit menu shows all logged configuration changes and logons. The filter controls allow you to select the space of time, the users, and the log-type and reduce so the shown entries to those of interest. This is basically a protocol listing all recent activity.

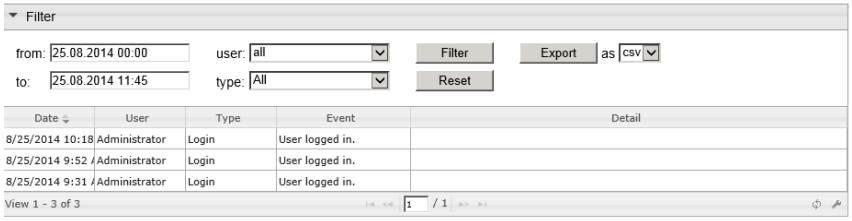


**Figure 6.28: Audit Log**

## 6.2.19. Alerting

The alerting menu shows a list of all alerts that have been processed by the Alert Messaging Server. Via this view all sent alerts can be traced and reviewed. The single alerts can be expanded by clicking the grey arrow pointing downwards left to an entry. Expanding an entry offers more detailed information about the selected alert. A status symbol shows if the alert has been sent successfully, if sending failed or if it partially worked.

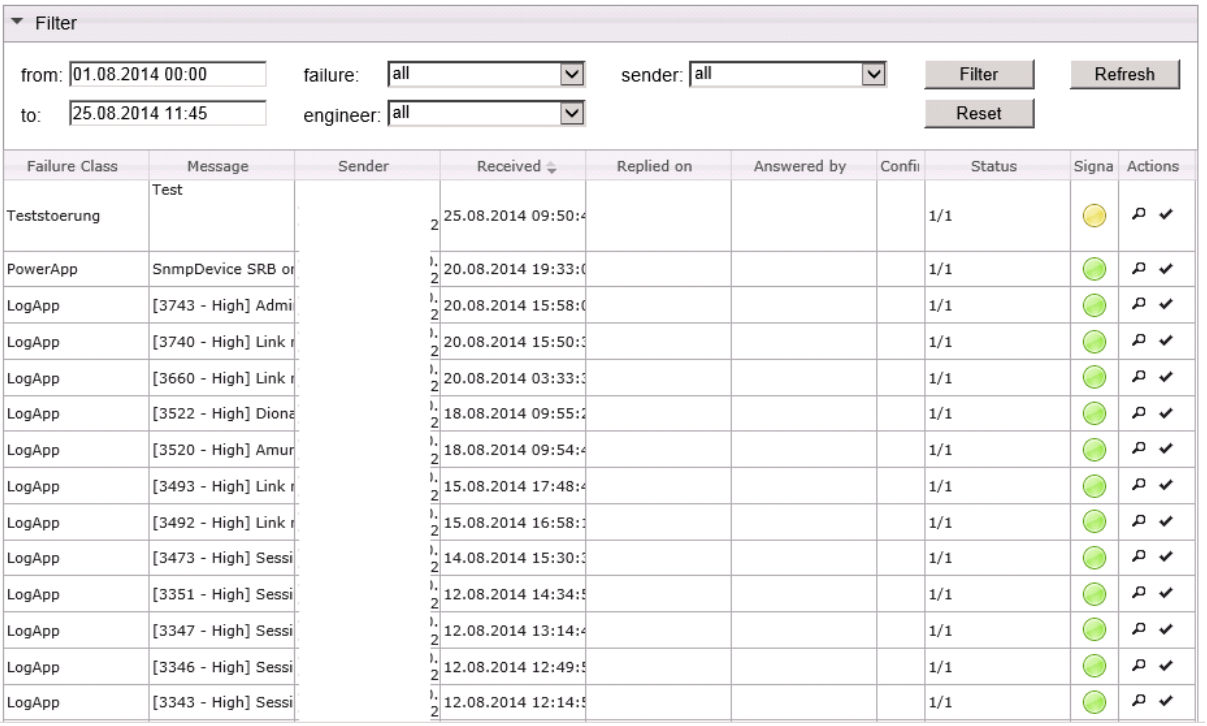


**Figure 6.29: The Alert log**

## 6.2.20. License use

The license use menu provides a convenient overview of the current license consumption, in addition to the information shown in the white box on the top right corner of the screen.

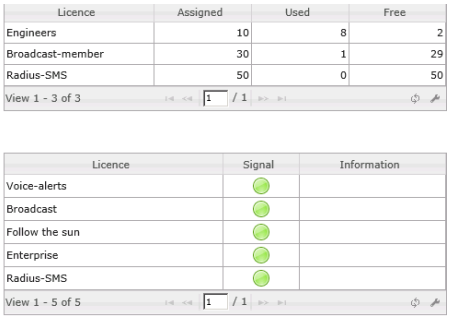


**Figure 6.30: License usage information**

## 6.2.21. Statistics

The statistics menu offers the ability to view a summary of all sent alerts. The filter controls allow you to alter the time period, reduce the shown statistics to a specific tenant or switch between a failure class, an email/SMS – report and an attendance – monthly report. There is also a button to export the report to CSV or PDF.

### Email / SMS – Report

The email/SMS-report lists all email/SMS notifications that have been sent in the specified time period. Successful sends are listed as well as failed sends and the entire number of sends.

### Failure Class

This summary lists the number of occurred failures separated into the failure classes.

### Attendance – monthly report

This report outputs the number of hours each engineer was on duty for the specified month.

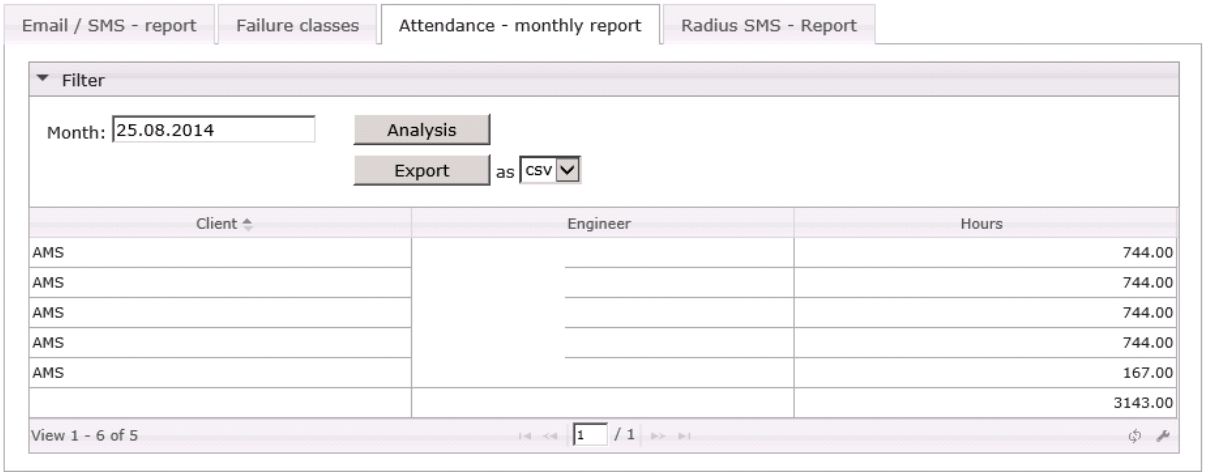


**Figure 6.31: Failure class filter controls**

## 6.2.22. Self-test

The Self-Test menu helps you test your configuration by trying to establish the database-, Alert Manager-, Queue Manager, mail server and Modem-connection. Visual feedback is given using the same status symbols as in the alerting menu. Keep in mind that sends can still fail because of a receiver error and this feedback is not a proof that every send successes.

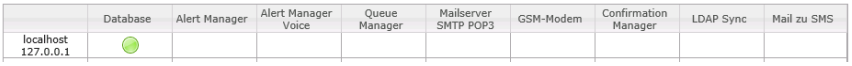


**Figure 6.32: Self test with visual feedback**

# 7. Webservice Client

In order to use the Webservice Client you have to install the Internet Information Server 7.5 or higher on the server you want to install the component (see system requirements). The Webservice Client of AMS is called in the browser by the address http://Servername/AMS_Webservice, whereas "Servername" is the hostname or IP address of the server, on which the web components of AMS are installed.

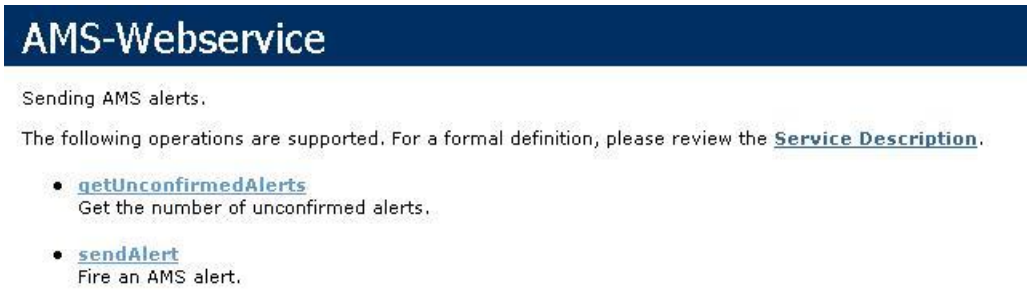


**Figure 7.1: The AMS Webservice Client**

## 7.1. Querying unconfirmed alerts

The number of unconfirmed alerts can be received by the Webservice-method "getUnconfirmedAlerts". No parameters are required.


**Figure 7.2: Querying unconfirmed alerts**

## 7.2. Sending alerts

Via the Webservice Client new alerts can be sent by the method “sendAlert”. You have to specify correct credentials (user, password, client), the name of an existing failure class and optionally a message text.

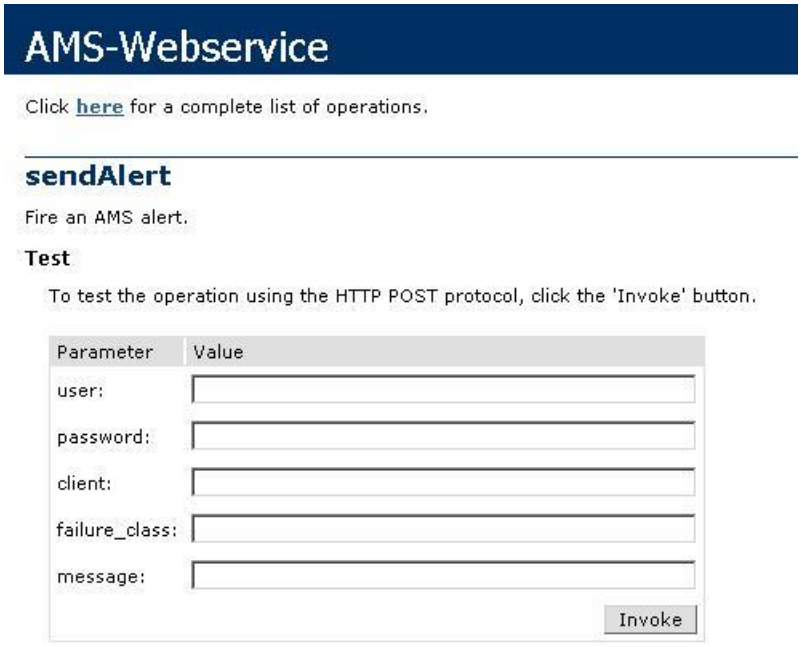


**Figure 7.3: Sending alerts**

# 8. Usage

The usage chapter covers the part of the engineers who are registered into to the AMS and their options to handle alerts. If you decide to provide a web console account to every engineer, make sure their user role is appropriately configured. This makes sense if you want absences to be set by the engineers themselves, for example. If no web console access is granted, all there's to do for an engineer is acknowledging alerts within time (by E-Mail, SMS and Voice).

## 8.1. Acknowledge occurred failures

If some management software reports a problem and notifies an engineer with the help of the Alert Messaging Server, the engineer has to confirm that alert within a defined escalation time. It's important that the AlertID is contained in the answer message, because the Alert Messaging Server detects the answer based on this id and marks the failure as treated in menu alerting if it received a confirmation message. All information about the alert (when the notification has been sent, what text it included, when and by whom it got confirmed and so on) can be gathered from the alerting menu in the web console.

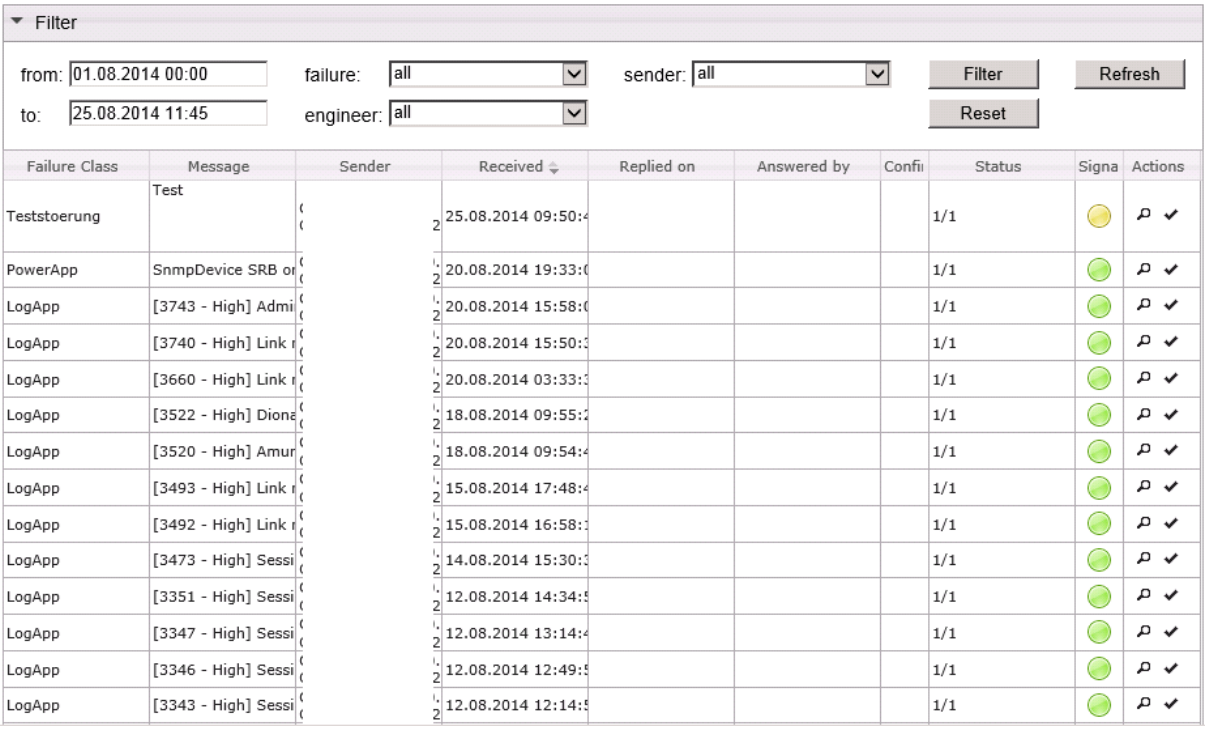


**Figure 8.1: Alerting menu sample entries**

As an engineer (with web console access), four possibilities exist to acknowledge occurring events:

### 8.1.1. Acknowledge via Web Console

If an alert occurs, the according information will be sent to the responsible engineer, and an entry holding information about the alert is placed in the alert menu on the web console (see Figure 8.1: Alerting menu sample entries). To mark the alert as treated and prevent the Alert Manager to escalate the alert further to the next engineers in sequence, click the acknowledge button according the current alert entry.

### 8.1.2. Acknowledge via SMS

To confirm a notification via SMS, the received SMS has to be returned to the sender without further modification. It's important that the AlertID is contained in the answer message, because it's needed by the Alert Messaging Server. As soon as the modem received the SMS and forwarded it to the Alert Messaging Server, the alert is marked as treated and accordingly labeled in the alert log.

### 8.1.3. Acknowledge via Email

To confirm a notification via email, the received email has to be replied without further modification. As soon as the email is received by the Alert Messaging Server, the alert is marked as treated and accordingly labeled in the alert log.

### 8.1.4. Acknowledge via Voice

To confirm a notification by Voice you have to press the Button 2 in the operator menu. Afterwards the alert is marked as treated and no further escalation is done.

# 9. Advanced Configuration

Basically, the Alert Messaging Server is completely configurable by the web console, but if you want to change settings of the Queue Manager, Alert Manager, Alert Manager Voice and LDAP synchronization service, you have to use the AMS Configurator.

## 9.1. The AMS Configurator

The Alert Messaging Server includes a tiny utility called AMS Configurator, which is a graphical user interface for the XML-based configuration files and allows you to change the Alert Manager, Alert Manager Voice, Queue Manager, Confirmation Manager, LDAPSync and MailToSMS service. The following figure shows a blank sample screenshot of the utility, which mainly describes itself.

The AMS Configurator executable (AMSConfigurator.exe) has to be placed into the same directory as the component to be configured. It automatically scans the directory for an existing configuration file and loads the data stored in it into the form fields. Simply edit the values and click "Save" to permanently store your changes.

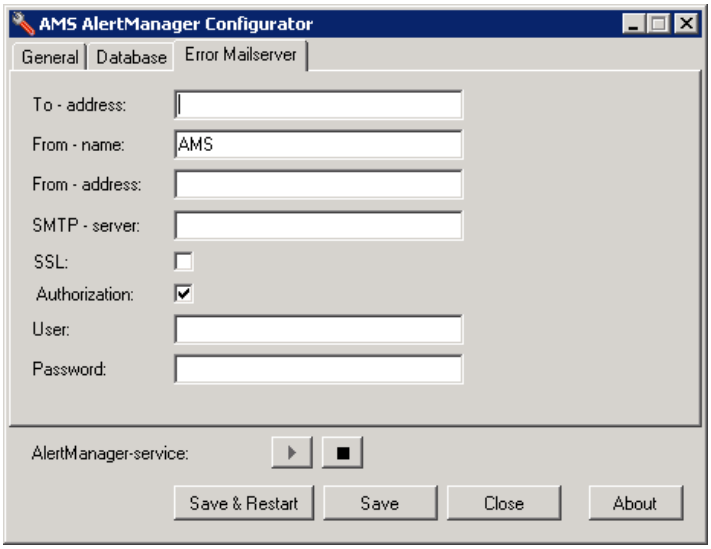


**Figure 9.1: The AMS Configurator**

## 9.2. The Silex Serial Device Server

In order to install the Alert Messaging Server into a virtual machine, the Silex Serial Service is required. The Serial Device Server creates a mapping between modem and virtual machine und enables the communication with the Alert Manager using a virtual COM-port. Figure 9.2: Communicating with the Siemens TC35i modem from a virtual machine should give you an idea about the underlying methodic. Accessing the modem from the virtual machine is reduced to specifying a virtual COM-port, though.

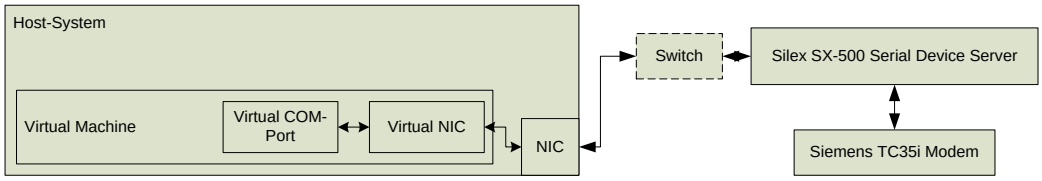


**Figure 9.2: Communicating with the Siemens TC35i modem from a virtual machine**

To implement the Silex Serial Server and add a virtual COM-port into your VM follow the steps below:

1. Connect the Serial Server to your company's network using an Ethernet cable and power it on. The IP-address of the Silex Server gets obtained automatically, if a DHCP server is active in your network, otherwise the default IP-address of the device is 192.0.0.192. If a DHCP server gave the Silex device a lease, search the active leases on the DHCP server for a hostname that contains "Silex" to get the assigned IP address.

2. Knowing the IP address of the device, point your web browser to the specific IP to gain access the web interface.

3. Click the login link in the navigation area to the left. The password the device asks for is ACCESS (in capital letters).

4. After a successful logon, all setup-options are shown in the menu to the left.

5. If you want the Silex device to use a static IP address click on TCP/IP and enter the IP into the correct form field. Click on send and confirm the next dialog to permanently store the settings. To assign the device a static lease, the MAC address is required. The device's MAC address is printed on the bottom of the device.

6. It is recommended to change the default access-password in the administrator-section of the web interface.

7. The default serial port settings do not have to be altered in order to communicate correctly with the modem.

8. Connect the modem with the Silex Serial Server using a serial cable. Plug in a valid SIM card and power on the modem.

9. Specify in your virtual machine that the virtual CD-ROM drive is mapped to the physical one and power on the machine.

10. After booting, insert the Silex-CD that came with your Serial Device Server and switch into the virtual machine. Select your CD-drive in Windows Explorer and navigate to utilities/SPE. If an autorun-screen appears, close it. From utilities/SPE, start setup.exe.

11. Install the Silex Serial Port Emulator. No configuration-options have to be entered at this point.

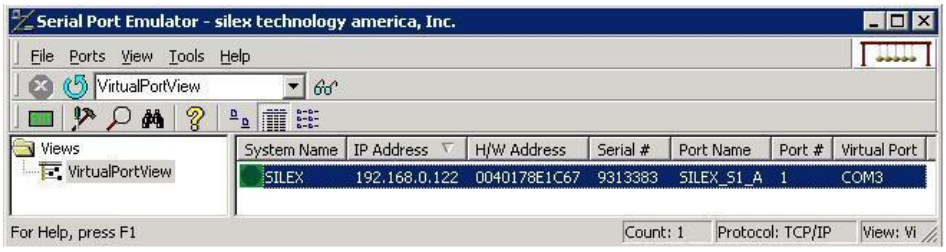


**Figure 9.3: The Silex Serial Port Emulator**

12. After installation, start the Serial Port Emulator and click on the binoculars-icon.

13. Enter the IP address of your Silex device and click ok.

14. A new line should have appeared in the list of available devices.

15. Right-click the entry and select “Virtual Port…”.

16. Choose a free COM-port from the drop-down list and check “Connect Port when Windows starts”. Click on “Add”.

17. The specified port-name stands now for the virtual port that has been created for you in the background. You can control this by opening the device manager. If you see an entry named “ELTIMA Virtual Serial Ports” all went fine.

18. Activate under Tools | Options “Start when Windows starts” and “Start Minimized”.

19. You can now install the Alert Messaging Server just like it runs on a physical system. Note that the previously defined COM port has to be specified when configuring the GSM-modem

after the installation. More information about installing the Alert Messaging Server on a physical server can be found in chapter 5.3 Installing on a physical machine.

If the connection fails or an error occurred during the steps above, please refer to the manual shipped with your Silex box for details and troubleshooting information.

# 10. Integration

The Alert Messaging Server is intended to be used in conjunction with other management software. The AMS client can be called by any software from command-line and send the needed information by the help of parameters to the queue manager. The queue manager collects the received data and sends it via SMS, email or voice call to the responsible engineer(s). The AMS client has to be registered and configured (see chapter 6.2.1 AMS-Clients) on the machine the software runs so that the Alert Messaging Server accepts notifications from it. More detailed information about AMS integration can be found in the AMS – Integration Guide. The following chapter describes the parameters available on the client.

## 10.1. Syntax AMS Client

The AMS client is a command line tool and can be found in %PROGRAM-FILES%\IQSol\AMS\Client. By simply executing ams.exe a list with a short description of all parameters is shown.

| Parameter | Description |
|---|---|
| -s „Failure Class“ | The failure class defined in the AMS |
| -n „Message“ | The message sent to the engineer (by E-Mail, SMS and Voice) |
| -nemail “Message” | The E-Mail messaging sent to the engineer (overrides –n) |
| -nsms “Message” | The SMS message sent to the engineer (overrides –n) |
| -nvoice “Message” | The message transmitted by voice call |
| -sms | A notification is sent only via SMS |
| -email | A notification is sent only via email |
| -voice | A notification is sent only via voice call |
| -t | Tests the connection to the queue manager |
| -output {screen\|file} | Write output to screen or file |

| | |
|---|---|
| -sk | Send the name of the failure class |
| -clear | Abort queued sends |
| -autoclose | Disables escalation for this alert |
| -bc “Broadcast group” | The Broadcast group to receive this alert |
| -fts | To send a Follow-The-Sun alert |
| -parX | Parameter for confirmation action (X = Number) |

# 11. Troubleshooting

If you have problems regarding AMS please contact our technical support by email:

techsupport@iqsol.biz

We offer our customers support with the following benefits:

- Single Point of Contact
- Control
- Quality assurance and quality improvement
- The Knowledgebase - the memory of the Alert Messaging Server Help Desk
- High quality collaboration

Customers using our service get a dedicated support telephone number or support email address. In general requests are made by email.

Our Help Desk offers support from:

Monday to Friday 8:00 AM - 5 PM CET

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